

## § 154.1415

### § 154.1415 Air compressor.

Each vessel must have an air compressor to recharge the bottles for the air-breathing apparatus.

### § 154.1420 Stretchers and equipment.

Each vessel must have:

- (a) Two stretchers or wire baskets; and
- (b) Equipment for lifting an injured person from a cargo tank, hold, or void space.

### § 154.1430 Equipment locker.

One of each item of equipment under §§ 154.1400 and 154.1420 must be stowed in a marked locker:

- (a) On the open deck in or adjacent to the cargo area; or
- (b) In the accommodation house, near to a door that opens onto the main deck.

### § 154.1435 Medical first aid guide.

Each vessel must have a copy of the *IMO Medical First Aid Guide for Use in Accidents Involving Dangerous Goods*, printed by IMO, London, U.K.

### § 154.1440 Antidotes.

Each vessel must have the antidotes prescribed in the *IMO Medical First Aid Guide for Use in Accidents Involving Dangerous Goods*, printed by IMO, London, U.K. for the cargoes being carried.

## Subpart D—Special Design and Operating Requirements

### § 154.1700 Purpose.

This subpart prescribes design and operating requirements that are unique for certain cargoes regulated by this part.

### § 154.1702 Materials of construction.

When Table 4 references one of the following paragraphs in this section, the materials in the referenced paragraph must not be in components that contact the cargo liquid or vapor:

- (a) Aluminum and aluminum bearing alloys.
- (b) Copper and copper bearing alloys.
- (c) Zinc or galvanized steel.
- (d) Magnesium.
- (e) Mercury.

## 46 CFR Ch. I (10–1–14 Edition)

(f) Acetylide forming materials, such as copper, silver, and mercury.

### § 154.1705 Independent tank type C.

The following cargoes must be carried in an independent tank type C that meets § 154.701(a):

- (a) Ethylene oxide.
- (b) Methyl bromide.
- (c) Sulfur dioxide.

### § 154.1710 Exclusion of air from cargo tank vapor spaces.

When a vessel is carrying acetaldehyde, butadiene, ethylene oxide, or vinyl chloride, the master shall ensure that air is:

(a) Purged from the cargo tanks and associated piping before the cargo is loaded; and

(b) Excluded after the cargo is loaded by maintaining a positive pressure of at least 13.8 kPa gauge (2 psig) by:

- (1) Introducing a gas that:
  - (i) Is not reactive;
  - (ii) Is not flammable; and
  - (iii) Does not contain more than 0.2% oxygen by volume; or
- (2) Controlling the cargo temperature.

### § 154.1715 Moisture control.

When a vessel is carrying sulfur dioxide, the master shall ensure that:

(a) A cargo tank is dry before it is loaded with sulfur dioxide; and

(b) Air or inert gas admitted into a cargo tank carrying sulfur dioxide during discharging or tank breathing has a moisture content equal to or less than the moisture content of air with a dew point of  $-45^{\circ}\text{C}$  ( $-49^{\circ}\text{F}$ ) at atmospheric pressure.

[CGD 74-289, 44 FR 26009, May 3, 1979, as amended by USCG-2014-0688, 79 FR 58285, Sept. 29, 2014]

### § 154.1720 Indirect refrigeration.

A refrigeration system that is used to cool acetaldehyde, ethylene oxide, or methyl bromide, must be an indirect refrigeration system that does not use vapor compression.

### § 154.1725 Ethylene oxide.

(a) A vessel carrying ethylene oxide must:

(1) Have cargo piping, vent piping, and refrigeration equipment that have no connections to other systems;

(2) Have valves, flanges, fittings, and accessory equipment made of steel, stainless steel, except types 416 and 442, or other material specially approved by the Commandant (CG-OES);

(3) Have valve disk faces, and other wearing parts of valves made of stainless steel containing not less than 11% chromium;

(4) Have gaskets constructed of spirally wound stainless steel with Teflon or other material specially approved by the Commandant (CG-OES);

(5) Not have asbestos, rubber, or cast iron components in the cargo containment system and piping;

(6) Not have threaded joints in cargo piping;

(7) Have a water spray system under § 154.1105 that protects the above deck cargo piping; and

(8) Have a nitrogen inerting system or on board nitrogen gas storage that can inert the vapor space of an ethylene oxide cargo tank for a period of 30 days under the condition of paragraph (e) of this section.

(b) Cargo hose used for ethylene oxide must:

(1) Be specially approved by the Commandant (CG-OES); and

(2) Be marked "For (Alkylene or Ethylene) Oxide Transfer Only."

(c) Ethylene oxide must be maintained at less than 30 °C (86 °F).

(d) Cargo tank relief valves for tanks containing ethylene oxide must be set at 539 kPa gauge (78.2 psig) or higher.

(e) The vapor space of a cargo tank carrying ethylene oxide must be maintained at a nitrogen concentration of 45% by volume.

(f) A vessel must have a method for jettisoning ethylene oxide that meets §§ 154.356 and 154.1872.

[CGD 74-289, 44 FR 26009, May 3, 1979, as amended by CGD 82-063b, 48 FR 4782, Feb. 3, 1983; USCG-2014-0688, 79 FR 58285, Sept. 29, 2014]

#### § 154.1730 Ethylene oxide: Loading and off loading.

(a) The master shall ensure that before ethylene oxide is loaded into a cargo tank:

(1) The tank is thoroughly clean, dry, and free of rust;

(2) The hold spaces are inerted with an inert gas that meets § 154.1710(b)(1); and

(3) The cargo tank vapor space is inerted with nitrogen.

(b) Ethylene oxide must be off loaded by a deepwell pump or inert gas displacement.

(c) Ethylene oxide must not be carried in deck tanks.

#### § 154.1735 Methyl acetylene-propadiene mixture.

(a) The composition of the methyl acetylene-propadiene mixture at loading must be within the following limits or specially approved by the Commandant (CG-OES):

(1) One composition is:

(i) Maximum methyl acetylene and propadiene molar ratio of 3 to 1;

(ii) Maximum combined concentration of methyl acetylene and propadiene of 65 mole percent;

(iii) Minimum combined concentration of propane, butane, and isobutane of 24 mole percent, of which at least one-third (on a molar basis) must be butanes and one-third propane; and

(iv) Maximum combined concentration of propylene and butadiene of 10 mole percent.

(2) A second composition is:

(i) Maximum methyl acetylene and propadiene combined concentration of 30 mole percent;

(ii) Maximum methyl acetylene concentration of 20 mole percent;

(iii) Maximum propadiene concentration of 20 mole percent;

(iv) Maximum propylene concentration of 45 mole percent;

(v) Maximum butadiene and butylenes combined concentration of 2 mole percent;

(vi) A minimum saturated C<sub>4</sub> hydrocarbon concentration of 4 mole percent; and

(vii) A minimum propane concentration of 25 mole percent.

(b) A vessel carrying a methyl acetylene-propadiene mixture must have a refrigeration system without vapor compression or have a refrigeration system with the following features:

(1) A vapor compressor that does not raise the temperature and pressure of